

禾本科植物锈菌新种

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NEW SPECIES OF GRAMINICOLOUS RUST FUNGI FROM CHINA

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1. 羽茅柄锈

Puccinia achnatheri-sibirici Wang sp. nov. Pl. LIV, Fig. 1

Teliis amphigenis, plerumque hypophyllis, etiam in vagina foliorum evolutis, minutis, oblongo-ellipticeis, 0.5—2 mm longis, interdum seriatim confluentibus, diutius epidermide tectis, dein ea fissa cinctis, pulvinatis; paraphysibus capitatis, superiore 10—20 μ , latis membrana 2.5—5 μ , apice 5—10 μ . Teliosporis brevi-clavatis, oblongo-globosis, apice truncatis vel leniter attenuatis, infra angustatis, ad septum non vel leniter constrictis, flavo-brunneis, supra obscurioribus, infra pallideis, 35—58 \times 15—20 μ , episporio 1—1.5 μ crasso, apice 2.5—5 μ incrassata; pedicello brevissimo, colorato, mesosporis paucis.

Hab. in foliis *Achnatheri sibirici* (L.) Keng (羽茅). Heilungkiang: Ning-an (宁安) X, 15, 1956 (20577 Typus)¹⁾. Honan: Lo-ning hsien (洛宁), XI, 4, 1957, Lee Chuen Tsu (黎春铸) 512 (34715).

冬孢子堆生叶两面,以下面为多,也生叶鞘上,长椭圆形,长0.5—2毫米,有时连接成条,长期覆盖在表皮下,后期破裂,垫状;隔丝头状,头宽10—20微米,膜厚2.5—5微米,顶厚5—10微米。冬孢子短棒状,长圆形,顶端平,圆或稍尖,基部渐细,分界处不收缩或稍收缩,黄褐色,上部色深下部较淡,35—58 \times 15—20微米;膜厚约1—1.5微米,顶端厚2.5—5微米;柄很短,有色;有少数单孢冬孢子。

这种锈菌的冬孢子没有柄是最突出的一个特征。它和寄生在羽茅和针茅两属植物上的任何一种都不同。

2. 野青茅柄锈

Puccinia changtuensis Wang sp. nov. Pl. LV, Fig. 9

Urediis epiphyllis, etiam in vagina foliorum evolutis, oblongis vel linearis, 0.5—3 mm, pulverulentis, flavo-brunneis, paraphysibus nullis. Urediosporis globosis vel subglobosis, pallide aureo-flavidis, 27—31 \times 27—30 μ ; membrana 2.5—5 μ crassa, verrucoso-echinu-

1) 括弧内的号头是中国科学院微生物研究所真菌标本号头;模式标本存中国科学院微生物研究所。

lato; poris germinativis 7—8, sparsis, conspicuis.

Teliis epiphyllis, ellipticis, 0.5—1.5 mm pulverulentis atro-brunneis. Teliosporis elongato-ellipticis, utrinque leniter attenuatis vel conico-attenuatis, medio leniter vel non constrictis, brunneis vel flavo-brunneis, $18-68 \times 18-25 \mu$; episporio $2-3 \mu$ crasso; apice $13-22 \mu$ incrassato; poro cellulae superiori apicali, poro cellulae inferiori prope septum; pedicello flavo, 100μ longo, deciduo.

Hab. in foliis Deyeuxiae sp. (一种野青茅) Tibet: Changtu (昌都) Kangtuo ad Je-Yong (岡沱到觉雍) IX, 1951, Kia Sien-hsue (贾慎修) 283 (34718 Typus).

夏孢子堆生叶上面,叶鞘上,长椭圆形或线形,长 0.5—3 毫米,粉状,黄褐色,无隔丝。夏孢子球形或近球形, $27-31 \times 27-30$ 微米,淡橙黄色;膜厚 2.5—5 微米,有粗状的刺;芽孔 7—8 个,很清楚,散生。

冬孢子堆生叶上面,椭圆形,0.5—1.5 毫米,粉状,黑褐色。冬孢子长椭圆形,两端稍尖或近圆锥形,褐色或黄褐色,分界处稍收缩或不收缩, $18-68 \times 18-25$ 微米;膜厚 2—3 微米,顶厚 13—22 微米;上室芽孔顶生,下室在界下;柄黄色,长达 100 微米,不脱落。

3. 落草柄锈

Puccinia paihuashanensis Wang sp. nov. Pl. LIV, Fig. 3

Urediis amphigenis, punctiformibus vel saepe ellipticis, minutis, sparsis, flavidis, pulverulentis, paraphysibus nullis. Urediosporis subgloboideis vel ellipsoideis, hyalino-flavescentibus, $20-30 \times 17-24 \mu$; membrana $1.5-2.5 \mu$ crassa, colorata, minuteque echinulata; poris indistinctis, verisimiliter numerosis, sparsis praeditis.

Teliis amphigenis et cauliculis, punctiformibus vel ellipticis 0.2—0.5 mm, aggregatis vel sparsis, epidermide tectis, flavo-brunneis. Teliosporis clavatis vel oblongo-ellipsoideis, irregularis, apice truncatis vel irregulariter rotundatis, medio non vel leviter constrictis, $38-56 \mu$ longis, cellulis superioribus $13-25 \mu$ latis, cellulis inferioribus $9-13 \mu$ latis; membrana 1.5μ crassa, apice ad $2.5-5 \mu$ incrassata; pedicello flavido, 13μ longo, interdum deciduo; mesosporis immixtis.

Hab. in foliis *Koeleriae cristatae* (L.) Pers. (落草) (= *Poa cristatae* L.). Hopeh: Paihuashan (百花山), IX, 19, 1950, Chao Chi-ding et al. (赵继鼎等) 315 (34706 Typus). *Koeleriae gracilis* Pers. Tibet: Pakong (巴贡) IX, 17, 1951, Tsuch Yuo-win (崔友文) 5717 (34705).

夏孢子堆生叶两面,点状,常作椭圆形而小,散生,黄色,粉状。夏孢子近球形或椭圆形,淡黄色, $20-30 \times 17-24$ 微米;膜厚 1.5—2.5 微米,有色,有密生细刺,芽孔不清,可能是多数散生。

冬孢子堆生叶两面和叶鞘上,点状或椭圆形,0.2—0.5 毫米,集生或散生,在表皮下,不破裂,黄褐色。冬孢子棒状,长椭圆形,不规则,顶平或不规则圆锥形,分界处不收缩或稍微收缩,长 38—56 微米,上室宽 13—25 微米,下室宽 9—13 微米;膜厚 1.5 微米,顶端可厚达 2.5—5 微米;柄黄色,长 13 微米,有时脱落;有单胞冬孢子。

这种锈菌和生在美洲同种寄主上的 *Puccinia conspicua* Mains 很近似,但后者的冬孢

子较短而圆 ($28-45 \times 18-26$ —Cummins; $28-40 \times 20-28$ —Arthur), 无单胞冬孢子; 夏孢子也较长而窄 ($24-38 \times 14-19$ —Arthur, Cummins)。它也有些象 *P. poarum* Niels. 而无隔丝。

4. 显子草柄锈

Puccinia phaenospermae Wang sp. nov. Pl. LIV, Fig. 4

Urediis in foliis amphigenis, plerumque epiphyllis, ellipticis vel oblongis, $0.5-1.2$ mm, aggregatis vel sparsis, epidermide rupta cinctis, pulverulentis, flavo-brunneis; paraphysibus filiformibus, flavescentibus. Urediosporis globosis, subglobosis, ovoideis, brunneis, $25-35 \times 20-28 \mu$; episporio $2-2.5 \mu$ crasso, dense echinato; poris germinationis 4, aequatorialibus.

Teliis amphigenis, plerumque epiphyllis, ellipticis vel late ellipticis, $0.5-1$ mm, epidermide fissa cinctis, atro-brunneis, pulvinatis. Teliosporis ellipsoideis, oblongo-ellipsoideis vel brevi-clavatis, apice rotundatis vel parum attenuatis, infra attenuatis, angustatis, septo non vel leviter constrictis, brunneis, $33-48 \times 18-22 \mu$; episporio $2-2.5 \mu$ crasso, ad apicem $5-11 \mu$ crassiusculo; pedicello brevi, flavo-brunneo.

Hab. in foliis *Phaenospermae globosae* Munro (显子草). Szechuan: Kwan hsien (灌县) X, 11, 1936, L. Ling (凌立) (2856); Chuan-nan hsien (川南县), X, 19, 1957, Chow Tze-lin (周子林等) 94057 (34709 Typus).

夏孢子堆生叶两面, 以下面为主, 椭圆形或长圆形, 长 $0.5-1.2$ 毫米, 集生或散生, 有破表皮围绕, 粉状, 黄褐色; 隔丝丝状, 淡黄色。夏孢子近球形, 卵圆形, 褐色, $25-35 \times 20-28$ 微米; 膜厚 $2-2.5$ 微米, 密生刺, 有芽孔 4 个, 腰生。

冬孢子堆生叶两面, 以下面为主, 椭圆形或短椭圆形, $0.5-1$ 毫米, 有破表皮包围, 褐黑色, 垫状。冬孢子椭圆形或长椭圆形, 短棒状, 顶端圆或稍作尖圆形, 下端稍窄, 分界处不收缩或稍收缩, 褐色, $33-48 \times 18-22$ 微米; 膜厚 $2-2.5$ 微米, 顶厚 $5-11$ 微米; 柄有色, 短。

这种锈菌和 *Puccinia chaetochloae* Arth. 很近似, 但后者的夏孢子较长 ($29-45$ 微米), 膜较薄 ($1.5-2$ 微米); 冬孢子较短而宽 ($32-37 \times 23-26$ 微米), 膜薄 (1.5 微米), 顶也较薄 ($2-4$ 微米), 节有时斜生。

5. 沙鞭柄锈

Puccinia psammochloae Wang sp. nov. Pl. LIV, Fig. 5

Urediis epiphyllis, minutis, ellipticis vel oblongo-ellipticis, $0.5-1$ mm longis, epidermide rupta cinctis, pulverulentis, flavo-brunneis; paraphysibus nullis. Urediosporis globosis aureo-flavis, $26-28 \mu$ diam; membrana 2μ crassa, dense verruculoso-echinata; poris germinativis 8-9, sparsis.

Teliis epiphyllis, minutis, ellipticis vel oblongo-ellipticis, $0.5-1$ mm longis, epidermide rupta cinctis, atro-brunneis. Teliosporis ellipsoideis, brevi vel ovato-ellipsoideis, apice rotundatis, angustatis, conicis, interdum oblique conicis, medio non vel leviter constrictis, $50-58 \times 20-23 \mu$; episporio $1.5-2.5 \mu$ crasso, $5-9 \mu$ incrassato ad apicem, levi; paro

cellulae superiori apicali vel depressiore, poro cellulae inferiori indistincto, probabiliter prope septum; pedicello 120 μ longo, colorato, firmo, persistenti.

Hab. in foliis *Psammochloae villosae* (Trin.) Bor. (沙鞭) Mongolia Interior: Si-lien-chi, Ku-nei-meo (西联旗, 古乃庙), VII, 24, 1954, Lee Sze-ying (李士英) 304 (34716 Typus); Y-mong (伊盟, 杭锦旗) VII, 29, 1953, (胡兴宇) 178 (34717)。

夏孢子堆生在叶上面, 小形, 椭圆形或长椭圆形, 长 0.5—1 毫米, 粉状, 有破膜包围, 黄褐色。夏孢子球形, 金黄色, 直径约 26—28 微米; 膜厚 2 微米, 密生粗刺; 芽孔 8—9 个, 散生。

冬孢子堆生叶上面, 小形, 椭圆形或长椭圆形, 长 0.5—1 微米, 有破膜包围, 黑褐色。冬孢子椭圆形, 长椭圆形, 顶端圆稍尖或圆锥形, 有时稍倾斜, 分界处不或稍微收缩, 50—58 \times 20—23 微米; 膜厚 1.5—2.5 微米, 顶厚 5—9 微米, 光; 上室芽孔顶生或稍偏, 下室孔不清楚, 似在界下; 柄长达 120 微米, 有色, 坚直不脱落。

6. 甜根子草长柄锈

Puccinia pugiensis Tai sp. nov. Pl. LIV, Fig. 6

Puccinia kuehnii (non Butl.), Tai, Farlowia 3: 112, 1949.

Uredii hypophyllis, etiam in vagina foliarum evolutis sparsis vel saepe seriatim dispositis, 0.5—2.5 mm longis, 0.2—0.5 mm latis, primo epidermide tectis, tandem ea longitudinaliter fissa cinctis, aureo-flavidis, pulverulentis; paraphysibus clavatis vel cylindraceutis, brunneis vel hyalinis, 43—77 μ longis, superiore 10—18 μ latis, membrana 1.5—2 μ crassa, apicem usque ad 3—6 μ intacta. Urediosporis subglobosis, ellipsoideis vel piriformibus, 27—39 \times 17—24 μ ; episporio 1.5—2 μ crasso, echinulato, subhyalino vel flavescenti; poris germinativis 4 aequatorialibus praedito.

Teliis hypophyllis, rotundatis, ellipticis, oblongis, sparsis vel seriatim in lineas dispositis, 0.4—2 mm longis, 0.2—0.8 mm latis, pulvinatis, atro-brunneis. Teliosporis ellipsoideis vel interdum subglobosis, late ovoideis vel oblongis, utrinque rotundatis, rarius truncatis vel obtuse acuminatis ad apicem, medio non constrictis cinnamomeo-brunneis, 36—56 \times 14—21 μ , levibus; episporio 1.5—2 μ crasso, apice 4—7 μ incrassato; pedicello brunneo, spora triplo longiore vel usque 139 μ longo, saepe lateraliter inserto.

Hab. in foliis *Sacchari spontanei* L. (甜根子草). Yunnan: Kunming, Pugi (普吉), XII, 1943. F. L. Tai (戴芳澜) TH 8377 (4377 Typus)。

夏孢子堆生叶下面, 也生叶鞘上, 长圆形或线形, 散生或排成条, 长 0.5—2.5 毫米, 宽 0.2—0.5 毫米, 初期有表皮覆盖, 后期缝裂, 新鲜时桔黄色, 粉状。夏孢子近球形, 椭圆形或梨形, 桔黄色, 27—39 \times 17—24 微米; 膜厚 1.5—2 微米, 近无色或带黄色, 有细刺; 芽孔 4 个, 腰生。

冬孢子堆生叶下面, 圆形, 椭圆形, 长圆形或线形, 散生或排成条, 长 0.4—2 毫米, 宽 0.2—0.8 毫米, 垫状, 褐黑色。冬孢子椭圆形或偶呈球形, 宽卵圆或长圆形, 两端圆, 间有平顶或尖顶的, 分界处不收缩, 暗褐色, 36—56 \times 14—21 微米; 膜厚 1.5—2 微米, 顶膜厚 4—7 微米, 光; 上室芽孔顶生或稍偏, 下室芽孔生界下; 柄带褐色, 长 3 倍于孢子或更

长, 达 139 微米, 有时侧生; 隔丝棒状或柱状, 带褐色或无色, 43—77 微米长, 顶部宽 10—18 微米, 膜厚 1.5—2 微米, 顶膜厚达 3—6 微米。

这种柄锈近似 *Puccinia kuehnii* Butl. 而柄长三倍于冬孢子本身, 可达 139 微米, 显然不同。

7. 福勃狗尾草柄锈

Puccinia setariae-forbesianae Tai sp. nov. Pl. LV, Fig. 7

Puccinia polysora (non Underw.), Tai, Farlowia 3: 115, 1949.

Uredii amphigenis, ellipticis vel subellipticis, minutis, 0.2—0.5 mm longis, sparsis, interdum gregariis, epidermide tectis, dein ea longitudinaliter fissa cinctis, pulverulentis atro-brunneis. Uredosporis ovoideis, irregulariter globosis, brunneo-flavidis, $27-31 \times 20-24 \mu$; membrana $1-1.5 \mu$ crassa, subtilissimo-echinulata; poris germinativis 3—4, aequatorialibus.

Teliis uredio conformibus sed colore obscuriore. Teliosporis irregulariter ellipsoideis, interdum angulatis, apice truncatis vel attenuatis, non constrictis ad septum, $25-31 \times 16-24 \mu$; episorio $1-1.4 \mu$ crasso, rarius ad apicem crassiore; poro germinativo cellulae superioris apicali, poro cellulae inferioris ab septum plus minus remoto; pedicello colorato, brevi, saepe lateraliter inserto, deciduo. Mesosporis paucis.

Hab. in foliis *Setariae forbesianae* (Nees) Hook. f. (福勃狗尾草) Yunnan: Kunming. Tapugi, TH 7535 (3535) et TH 7631 (3631 Typus).

夏孢子堆生叶两面, 椭圆形或短椭圆形, 很小, 长 0.2—0.5 毫米, 散生, 有时集生, 初期覆盖在表皮下, 成熟后缝裂成粉状, 黑褐色。夏孢子卵圆形, 不规则圆形, 褐黄色, $27-31 \times 20-24$ 微米; 膜厚 1.5 微米, 有极细刺, 芽孔 3—4 个生腰部。

冬孢子堆生叶两面, 形同夏孢子堆而色较深。冬孢子不规则椭圆形, 有时有稜角, 顶端平或渐削, 分界处不收缩, $25-31 \times 16-24$ 微米; 膜厚 $1-1.4$ 微米, 顶端很少略厚; 上室芽孔顶生或稍偏, 下室芽在中部; 柄短, 常斜生, 有色, 常断落。有少数单孢冬孢子。

8. 芦苇圆孢柄锈

Puccinia sinkiangensis Wang sp. nov. Pl. LV, Fig. 8

Uredii amphigenis, ellipticis vel oblongis, in aream magnam dense aggregatis, pulverulentis, brunneis, eparaphysatis. Urediosporis ovoideis, ellipsoideo-ovoides, pallide flavidis, $27-31 \times 17-20 \mu$; membrana $5-7 \mu$ crassa, verrucoso-echinulata; poris germinativis indistinctis, probabiliter 3—5, aequatorialibus.

Teliis amphigenis, ellipticis vel oblongis, in aream magnam dense aggregatis, usque ad 10 mm longis, 5 mm latis, pulverulentis, atro-brunneis. Teliosporis late ellipsoideis, utrinque rotundatis, septo non constrictis, flavescentibus, $45-48 \times 28-31 \mu$; membrana $3-4 \mu$ crassa, echinulata; poro germinativis in loculo superiore apicali, in loculo inferiore prope basim posito; pedicello 150μ longo, deciduo vel persistenti.

Hab. in foliis *Phragmitis communis* Trin. (芦苇). Sinkiang: Akosu (阿克苏) alt. 1350m IX, 11, 1958, Hsu Lien-wang (徐连旺) 333 (34719 Typus); Kuerhlei (库尔勒) VII,

11, 1958, Hsu Lien-wang 69 (34720).

夏孢子堆生叶两面, 椭圆形或长形, 密集成大片, 粉状, 褐色。夏孢子卵圆形, 长卵圆形, 淡黄色, $27-31 \times 17-20$ 微米, 膜厚 $5-7$ 微米, 有粗疣; 芽孔不清, 似为 $3-5$ 个, 腰生。

冬孢子堆生叶两面, 椭圆形或长圆形, 密集成大片, 长达 10 毫米, 宽可 5 毫米, 粉状, 黑褐色。冬孢子短椭圆形, 两端圆, 分界处不收缩, 黄色, $45-48 \times 28-31$ 微米; 膜厚 $3-4$ 微米, 有细疣; 上室芽孔顶生, 下室芽孔近柄或略向上方; 柄长达 150 微米, 脱落或不落。

这种柄锈和生在芦苇上的其他 12 种柄锈都不同, 它的冬孢子是短椭圆形, 孢膜很厚, 下胞室的芽孔生在柄附近, 不是生在界下, 这一点是它最特殊的性状。

9. 雀麦柄锈

Puccinia tsinlingensis Wang sp. nov. Pl. LIV, Fig. 2

Uredii amphigenis, plerumque epiphyllis, ellipticis, $0.5-1$ mm longis, sparsis, epidermide fissa cinctis, pulverulentis, flavo-brunneis, paraphysibus nullis. Urediosporis globosis, subglobosis, aurantiacis $21-25 \times 20-23 \mu$, episporio $2-2.5 \mu$ crasso, echinato; poris germinationis $6-7$, sparsis, papilla hyalina obvallatis.

Teliis amphigenis, plerumque epiphyllis, interdum cauliculis, punctiformibus, ellipticis, sparsis, $0.2-0.5$ mm, epidermide tectis, pallide atris. Teliosporis clavatis, oblongis, apice irregulariter conicis, truncatis, basi rotundatis vel leviter attenuatis, medio leviter vel non constrictis, superiore brunneis, basi pallide brunneis, $41-58 \times 17-23 \mu$, membrana $1-2 \mu$ crassa, apice usque ad $3-5 \mu$; pedicello flavescenti, usque ad 18μ , interdum deciduo.

Hab. in foliis *Bromi japonici*, Thbg. (雀麦) Shensi: Miao-tai-sze (庙台子), VI, 30, 1952, Yang Cheo-min et Liu Hsian-cheo (杨作民等) 1457 (17782 Typus). Sinkiang: Ta-cheng (塔城) VI, 20, 1959, Liu Heng-ying (刘恆英) 546 (25456). *Bromi tectorum* L. (旱雀麦) Sinkiang: Huo-cheng (霍城), V, 12, 1959, Liu Heng-ying 350 (34712).

夏孢子堆生在叶两面, 以上面为主, 椭圆形, $0.5-1$ 毫米, 散生, 有破裂的表皮包围, 粉状, 黄褐色。夏孢子球形, 近球形, 橙黄色, $21-25 \times 20-23$ 微米; 膜厚 $2-2.5$ 微米, 有刺, 有芽孔 $6-7$ 个, 散生, 很明显, 有乳罩状膜覆盖。

冬孢子堆生叶两面, 以下面为主, 也生叶鞘, 点状, 椭圆形, 散生, $0.2-0.5$ 毫米, 埋藏在表皮下, 不破裂, 灰褐色。冬孢子棒状, 椭圆形, 顶端不整圆锥形或平顶, 基部圆或细窄, 分界处稍收缩或不收缩, 顶端深褐色, 下部稍淡, $41-58 \times 17-23$ 微米; 膜厚 $3-5$ 微米; 柄淡黄色, 可达 18 微米, 有时断落。

这种锈菌的夏孢子很特别, 芽孔显著, 芽孔上有乳罩状膜十分明显; 冬孢子的形态也很特别, 它和迄今已知生在雀麦属 (*Bromus*) 上的 12 种锈菌都不同。

10. 升马唐单胞锈

Uromyces digitariae-adscendentis Wang sp. nov. Pl. LV, Fig. 10

Uredii epiphyllis, interdum amphigenis, punctiformibus ellipticis $0.5-0.8$ mm longis, primo epidermide tectis, dein ea fissa cinctis, pulverulentis, pallide flavescentis, epara-

physatis. Urediosporis globosis, subglobosis, interdum irregularibus, aureo-flavescentibus, $22-28 \times 20-23 \mu$; membrana 2μ crassa, echinulata; poris germinativis 7—8, sparsis.

Teliis epiphyllis, uredio conformibus sed atro-brunneis. Teliosporis subglobosis, piriformibus, ovoideis, apice conico-rotundatis, basi rotundatis vel attenuatis, brunneis, $25-38 \times 16-20 \mu$; episporio 1.5μ crasso, apice 6—11 μ ; pedicello pallide brunneo, 50μ longo, persistenti.

Hab. in foliis *Digitariae adscendentis* (H. B. K.) Henrard (升马唐) Szechuan: Chengkow (城口), VIII, 26, 1958, Yu Yong-nian (余永年) 1087 (34726 Typus). *D. violacensis* Link. (紫马唐). Kwangtung: Dinghu shan (鼎湖山) IX, 9, 1958, Cheng Ju-yung (郑儒永)等 90 (34725). Taiwan: (34723). *D. ternatae* (三数马唐) Yunnan: Bao shan hsien (保山), IX, 1959, Wang Ching-tze (王庆之) 1228 (34724) et 1534 (34727).

夏孢子堆生叶上面,有时生两面,点状或椭圆形,长 0.5—0.8 毫米,粉状,淡黄色,无隔丝。夏孢子球形,近球形,有时不规则,橙黄色, $22-28 \times 20-23$ 微米;膜厚 2 微米,有刺,芽孔 7—8 个散生。

冬孢子堆生叶上面,形状大小同夏孢子堆,褐黑色。冬孢子近球形,梨形,卵圆形,顶端圆锥形,平,基部圆或稍窄,褐色, $25-38 \times 16-20$ 微米。膜厚 1.5 微米,顶厚 6—11 微米;柄淡褐色,长 50 微米,不脱落。

这种菌和生在三数马唐上的非洲的 *Uromyces peglerae* Pole et Evans (Sydow, Ann. Myc. 12:263, 1914) 近似,但后者的冬孢子顶厚 5 微米,夏孢子芽孔 5—6 个;冬孢子堆生在叶两面。

11. 中华草沙蚕单胞锈

Uromyces tripogonis-sinensis Wang sp. nov. Pl. LV, Fig. 11

Urediis epiphyllis ellipticis vel oblongis, 0.5—1 mm longis, sparsis, pulverulentis, flavo-brunneis, paraphysibus nullis. Urediosporis globosis vel subglobosis, irregularibus, flavo-brunneis, $20-25 \times 18-23 \mu$; episporio $2-2.5 \mu$ crasso, echinulato; poris 5—6, aequatorialibus.

Teliis epiphyllis, punctiformibus, rotundatis vel late ellipticis, 0.2—0.5 mm longis, pulvinatis, atro-brunneis. Teliosporis globosis, subglobosis, brunneis, $20-25 \times 18-23 \mu$; membrana $2-2.5 \mu$ crassa, apice crassiore 4—8 μ ; pedicello pallide brunneo, hyalino, sporam subaequant vel eam leviter longiore, persistenti.

Hab. in foliis *Tripogoni chinensi* (Franch.) Hack. (中华草沙蚕) (= *Festucae filiformis* Steud. var. *chinensi*). Hopei: Paihuashan, IX, 23, 1950, Chao Chi-ding m. 1. 453 (18108 Typus).

夏孢子堆生在叶上面,椭圆形或长椭圆形,长 0.5—1 毫米,散生,粉状,褐黄色,无隔丝。夏孢子球形或近球形,不规则,黄褐色, $20-25 \times 18-23$ 微米;膜厚 2—2.5 微米,有刺,有芽孔 5—6 个,腰生。

冬孢子堆生叶上,点状,圆形或宽椭圆形,黑褐色,0.2—0.5 毫米,垫状。冬孢子球形,近球形,褐色, $20-25 \times 18-23$ 微米;膜厚 2—2.5 微米;顶厚 4—8 微米;柄与孢子等长

或略长,淡黄褐色,不脱落。

这种锈菌和 *Uromyces trichonuræ* Doidge (= *U. tripogonicola* Payak et Thirum.) 近似,但后者孢子较大,夏孢子为 $27-33 \times 22-25$ 微米,冬孢子为 $23-32 \times 16-20$ 微米。

12. 发草夏孢锈

Uredo deschampsiae-caespitosae Wang sp. nov. Pl. LV, Fig. 12

Urediis amphigenis, plerumque epiphyllis, minutis 0.5—2 mm, ellipticis vel linearibus, pulverulentis, flavo-brunneis paraphysibus nullis. Urediosporis ellipsoideis, subglobosis, ovoideis, pallide flavo-brunneis, $18-27 \times 13-18 \mu$; membrana $1.5-2.5 \mu$, crassa; poris germinationis 2—4, aequatorialibus.

Hab. in foliis *Deschampsiae caespitosae* (L.) Beauv. (发草) Yunnan: Tali (大理), Alt. 2900m. IX, 7, 1959, Wang Ching-tze 1222 (34708 Typus).

夏孢子堆生叶两面,以上面为主,小形,0.5—2 毫米,椭圆形或线形,粉状,黄褐色,无隔丝。夏孢子椭圆形,近球形,卵形,淡黄褐色, $18-27 \times 13-18$ 微米;膜厚 $1.5-2.5$ 微米,芽孔 2—4 个,腰生。

13. 皱叶狗尾草夏孢锈

Uredo setariae-excurrentis Wang sp. nov. Pl. LV, Fig. 13

Urediis in foliis amphigenis, punctiformibus, 0.1—0.2 mm longis, sparsis vel aggregatis in maculis decoloratis insidentibus, interdum seriatis dispositis, pulverulentibus, flavo-brunneis; paraphysibus curvatis vel lunatis, membrana interiore tenui 1.5μ crassa, membrana exteriori $3-5 \mu$ crassa. Urediosporis subglobosis, ellipsoideis vel subovoideis, flavo-brunneis $20-23 \times 18-23 \mu$; episporio 1.5μ crasso, dense echinato; poris germinativis 4—6, sparsis praedita.

Hab. in foliis *Setariae excurrentis* (Trin.) Miq. (皱叶狗尾草) (= *Panico excurrenti*). Kweichow: Tseo-Heng hsien (册亨), X, 27, 1958, Wang Ching-tze 605 (34707 Typus).

夏孢子堆生叶两面,圆点状,0.1—0.2 毫米,散生或集生,生变色的病斑上,也能排列成行,粉状,黄褐色;隔丝弯曲成月芽形,内壁厚 1.5 微米,外壁厚 $3-5$ 微米,黄褐色。夏孢子近球形,椭圆形,近卵圆形,黄褐色, $20-23 \times 18-23$ 微米;膜厚 1.5 微米,有细刺,有芽孔 4—6 个,散生。

14. 疏花针茅夏孢锈

Uredo stipae-laxiflorae Wang sp. nov.

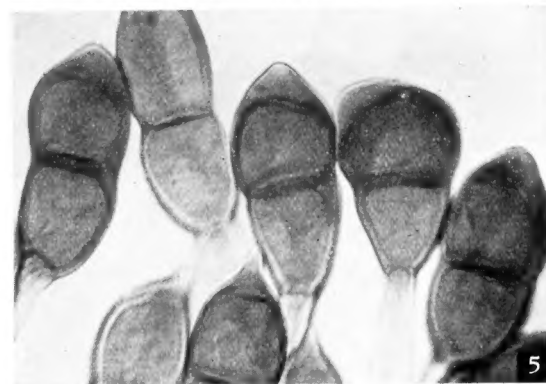
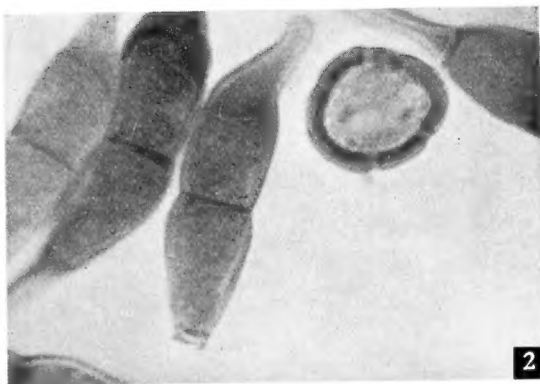
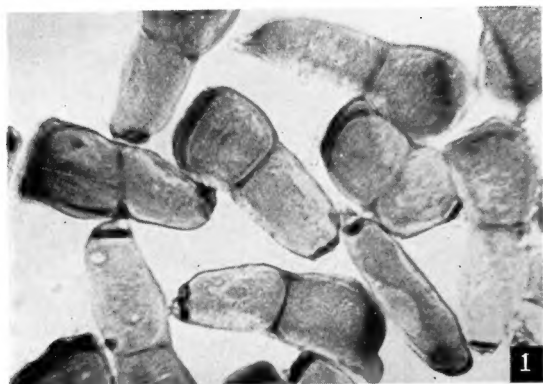
Urediis hypophyllis, minutis, 0.1—0.2 mm, epidermide fissa longitudinaliter cinctis, flavo-brunneis, pulverulentis; paraphysibus capitatis 50μ longis, supra 20μ latis, apice 5μ incrassa. Urediosporis ovoideis subglobosis, ellipsoideis, $17-25 \times 15-20 \mu$; membrana 1.5μ crassa, echinata; poris germinativis 6—7, aequatorialibus, papilla hyalina tectis.

Hab. in foliis *Stipae laxiflorae* Keng (疏花针茅) Yunnan: Kwangan hsien (广安), VI, 26, 1959, Wang Ching-tze 620 (34721 Typus).

夏孢子堆生在叶下面,小形,长 0.1—0.2 毫米,缝裂,有破皮围绕,黄褐色,粉状,有隔丝

头状,长约 50 微米,头宽 20 微米,顶膜较厚为 5 微米。夏孢子卵圆形,近圆形,椭圆形, $17-25 \times 15-20$ 微米;膜厚 1.5 微米,有刺;芽孔 6—7 个,生腰部,有乳罩状膜很明显。

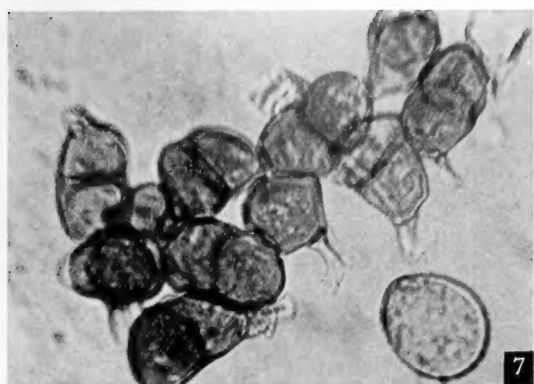
这种锈菌孢子的形态大小近似南美的 *Puccinia saltensis* 的夏孢子,但 *P. saltensis* 夏孢子堆中的隔丝顶膜厚达(5—)7—9(—11)微米,芽孔 4—6 个,生腰部上下,夏孢子堆生叶上面。



1. *Puccinia achnatheri-sibirici* Wang;
2. *P. changtuensis* Wang;
3. *P. paihuashanensis* Wang;

4. *P. phaenospermae* Wang;
5. *P. psammochloae* Wang;
6. *P. pugiensis* Tai.

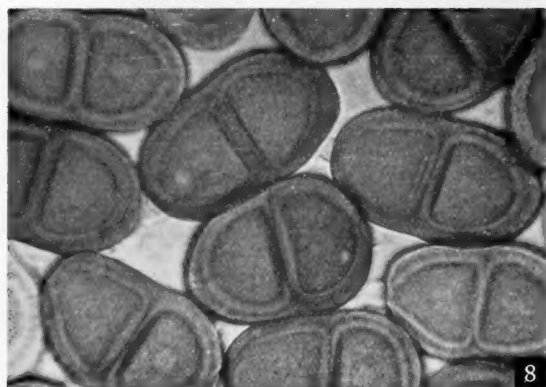
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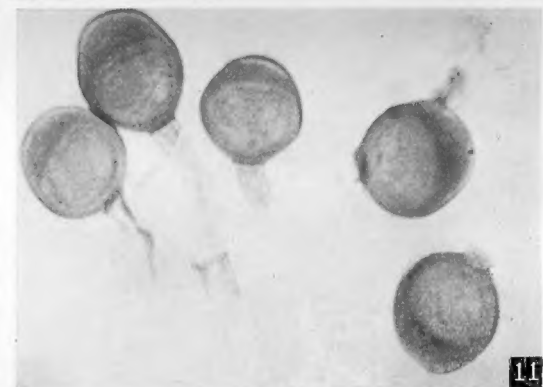
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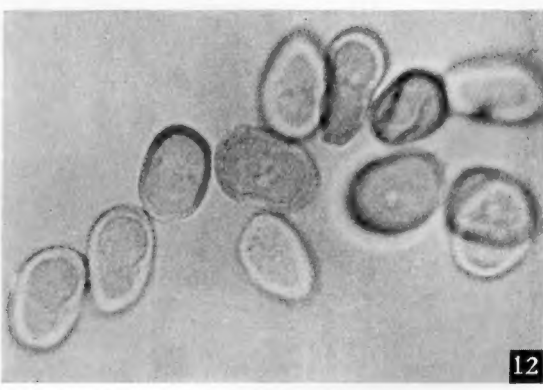
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11



8



12



9



13

7. *Puccinia setariae-forbesianae* Tai;
8. *P. sinkiangensis* Wang;
9. *P. tsinglingensis* Wang;

10. *Uromyces digitariae-adscendentis* Wang;
11. *U. tripogonis-sinensis* Wang;
12. *Uredo deschampsiae-caespitosae* Wang;
13. *U. setariae-excurrens* Wang.

(照片均放大 600 倍)